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Before Application of	Group Art Unit: 2311
JOSHUA D. KAPLAN	Examiner R. Weinhardt
Serial No. 08/035,661	DECLARATION OF GARY W. SCHWEDE, Ph.D. PURSUANT TO RULE 132
Filed: March 23, 1993	
For: APPARATUS AND METHOD FOR POINT OF PREVIEW AND FOR COMPILATION OF MARKET DATA	

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

Attached hereto is the Declaration of Gary W. Schwede, Ph.D. pursuant to Rule 132.

Respectfully Submitted,
DERGOSITS & NOAH

Dated: March 28, 1994

By: Michael E. Dergosits
Michael E. Dergosits
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TOTAL P.03

A Comparison of the Intouch **i station** to the "METHOD AND APPARATUS..." of Stern and Stern (US pat. 5,084,768)

Gary W. Schwede, Ph.D., Consultant
March 28, 1994

STATEMENT:

I, the undersigned, am an engineering consultant with special expertise and extensive experience in the fields of digital audio, data compression, interactive multimedia systems, and the design of computer-based systems to store, process, and retrieve digital audio data.

My resume, attached, outlines some of my relevant experience.

I have no stake in nor control of any of the parties mentioned in the following analysis.

I have examined US Patent no. 5,084,768 (Stern et al.), hereinafter "Stern", excepting the copyrighted computer program codes in Appendices 1 and 2, which I have only briefly seen and have made no effort to understand in detail. I do not believe that the details of these codes are relevant to the points I make below.

I have examined US Patent no. 5,237,157 (Kaplan), hereinafter "Kaplan". I have been given a demonstration of the Intouch **i station** kiosk apparatus at the offices of the Intouch Group in San Francisco, CA, and I have used an **i station** at a retail store.

It is my considered opinion that the **i station** is very significantly different in function, design, engineering basis, and operational capabilities from the method and apparatus disclosed in Stern. I believe that the **i station** contains innovations which are not obvious to one of normal skill in the art in light of Stern. Moreover, I believe that the modifications necessary to arrive at the **i station** from the Stern device are non-trivial.

Specifically, I find three significant areas of innovation over Stern, as discussed in the following sections.

1) Appropriateness and flexibility of the user interface

Stern provides a panel of many backlit switches which "preferably presents a wide variety (e.g. 50 or more) of selections to the user simultaneously" [c.2/ll.20-22].

This is a poor arrangement ergonomically, as it presents the user with too many items of information simultaneously, and thus an overly broad choice tree. This is inherent in the planar, single-level interface of Stern, which cannot be changed in real time, and thus must behave as a primitive many-pole selector switch.

In contrast, the **i station** uses its video monitor to dynamically recast the choices available to the user, so that, at any time, the choice tree can be kept to a few easily recognized choices. This is an altogether more useful and usable interface. It cannot be accomplished with the apparatus of Stern, because Stern's input device and video monitor are separate in both function and implementation. The video monitor is strictly for display, and does not implement a reconfigurable touch screen for user input.

In addition to the reconfigurable input selector (a touch screen over a computer-drawn video image), the **i station** includes different input mechanisms, including a bar code reader which can identify the actual product under consideration for purchase, and a simulated typewriter keyboard. These mechanisms allow the user to "jump" from one subtree of the choice hierarchy to another, in a search pattern directed by the user's own preferences (without restriction to the current set of choices displayed.) Thus, broad categorizations such as "classical" vs. "rock" vs. "jazz" can be implemented, as well as subcategorizations like

"chamber music,"
"chamber music by W.A. Mozart,"
"chamber music of the 19th century,"
"chamber music of the 19th century performed by all-female ensembles,"

and so on. Such database search mechanisms are crucial and powerful, and simply cannot be derived from Stern's single-level switch arrangement.

While it is probably true that the Stern device could easily be modified to provide the user with a few fixed functions such as "pause," "repeat," or "stop," common to all selections, this is not the same inventive step required to implement selection among several subchioces for each selection. This is true not only at the top level of such a modification to Stern (e.g., singles within an album), but also at deeper levels of interaction as suggested in the preceding paragraph. Further, while it may be common knowledge that a plurality of "singles" are often packaged together in an "album" product, this is not equivalent to recognizing, implementing, and providing a flexible, user-friendly search interface such as is found in the **i station**.

2) Content of the stored material and its relation to the product being sold

Even without regard to the storage medium taught in Stern ("a laser video disk" [c.2/l.7], "first and second optical disks" [c.2/ll.28-35], "video disk players" [c.4/ll.24-41]), what is being stored and displayed is always a "full motion video selection" [c.1/l.66], also called a "Music video selection" [c.3/l.48]. Compared to music compact

disks (CDs), music videos are a separate art form and product, which product is not contained on the CDs among which the user is supposedly choosing. Therefore, at least in retail music applications, Stern's device does not function to allow the user to audition the material he or she is to actually purchase.

In contrast, the **i station** does not rely on music videos: instead, it stores (albeit in compressed and excerpted form), the actual program material which the user is to be making a purchase decision. This is important in two ways: it is both more pertinent to the user's buying decision, and not dependent on the existence of a music video somehow related to the audio-only product.

3) Data collection features of the Intouch system

Stern's disclosure is essentially a music video version of a stand-alone jukebox. It contains no reference to data-gathering capabilities of any kind.

The Intouch system, consisting both of individual **i stations** and a means of communicating data among several **i stations**, is disclosed in Kaplan and used in actual operation. The ability to collect data on preferences, stock levels, etc. can be critical to the system's acceptance by record production companies and retailers. Neither the local nor the networked data gathering capabilities are present in Stern's disclosure.

SUMMARY

These are some of the aspects of the **i station** which are not present or anticipated in Stern's device. Because the labels of the planar switch matrix in Stern are fixed for any one user session, the kinds of database search, access, and user interaction capabilities present in the **i station** would be impracticable. Even if a very large number of switches[1] could be provided in a Stern-derived device, both finding and physically activating them would be impractical.

Further, the **i station** adds levels and modes of retrieval complexity which are simply not considered or suggested in Stern, and which cannot be added without completely redesigning the user interface mechanism.

In summary, I do not believe that it would be obvious to one of normal skill in the art to derive the Intouch system or the **i station** apparatus from the teachings of Stern.

[1] For example, if an average of five selections from each of ten thousand albums were to be addressed in a planar keypad approximately 1.5 ft.x 3 ft. in size, each of the keys would be about 0.1 inch on a side.

All statements made herein of my own knowledge are true, and all statements made herein on information and belief, I believe to be true. I have been warned that willful false statements, and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopadize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Gary W. Schwede, Ph.D.
March 28, 1994
Palo Alto, CA, USA

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PROFESSIONAL EXPERIENCE

STREAM COMPUTERS, INC., Santa Clara, CA. **1988 - present**
Stream offers a patented technology for low-cost, real-time reconfigurable, application-specific multiprocessors with supercomputer-scale performance.

Founder and President

Invented and developed a proprietary, modular, object-structured multiprocessor technology which is processor- and platform-independent and easily adaptable to a wide variety of applications. Designed both an integrated circuit chipset and an object-oriented operating system usable for any Stream computer implementation.

Founded and incorporated Stream Computers to supply Stream technology licenses, chip sets, and operating software to multiple markets.

Filed four US. patent applications. Wrote disclosures and amended claim language. Filed international applications on the basic Stream technology patent.

US Patent No. 5,276,900, covering basic Stream computer technology, issued 4 January, 1994.

Designed and implemented the most advanced digital audio computer yet offered to consumers. This processor is part of the "media computer" produced in 1991-92 by Frox, Inc., of Sunnyvale, CA, under license from Stream.

Designed the Stream 3 multiprocessor and organized its production by multiple subcontractors. The Stream 3 can handle hundreds of full-rate audio channels and thousands of coherently adjustable parameters simultaneously. Seven Stream 3s were delivered, all ahead of schedule.

Designed an audiophile-quality multichannel converter unit including 4 channels of D/A, 2 channels of A/D, ultra-low distortion preamps and drivers, and remote gain control.

Invented, built, and tested an ultra-low jitter data recovery apparatus for CD playback.

Negotiated all contracts, licensing, and sales agreements.

Responsible for strategic direction, technology growth, qualification and development of applications, engineering planning and management, and systems definition and architecture -- both hardware and software.

SHAREBASE CORP. (was Britton Lee, Inc.), Los Gatos, CA. **1987-88**
Sharebase (later purchased by Teradata/NCR/AT&T) manufactured and marketed high-performance relational database computers and software.

Consultant

Defined, designed, and managed the development of a very high performance SCSI-Ethernet communications processor for the company's flagship product, the BL8000 Shared Database System. This simple and exceedingly reliable communications unit sustains the entire bandwidth of a 10 MHz Ethernet, using only two 10 MHz 68000 microprocessors.

ENTRACK CORPORATION, Palo Alto, CA **1986-87**
Entrack was founded to produce digital audio editing equipment for audio, video, and film post-production and cart machine replacement.

Vice President and Co-founder

Defined hardware and software for modular disk-based audio editing/playback equipment.

Visited and interviewed prospective users and customers: recording engineers, film and video sound engineers, studio owners and managers. Defined a productivity-oriented user interface that remains to be fully realized by any of the surviving companies in this field.

With the company's president and sales & marketing founder, defined a multiphase product development and marketing strategy.

Presented business plan to the venture capital community and prospective strategic partners. Although Entrack did not succeed in securing venture funding, gained experience in the problems and opportunities associated with starting and funding a new technology company.

COMPUSONICS CORPORATION, Palo Alto, CA and Cambridge, MA **1985-86**
Compusonics pioneered removable, erasable disk-based digital audio equipment, using high-density magnetic recording and real-time data compression techniques.

Chief Scientist

Specified and designed digital hardware, test and interface software

Recruited and supervised engineering and support staff for the Palo Alto office.

BRITTON-LEE, INC., Los Gatos, CA. **1983-84**
Britton-Lee supplied high-performance relational database systems.

Senior Hardware Engineer

Co-designed a LAN processor for BLI's IDM 500, the first dedicated relational database machine.

Defined and designed a faster, more reliable database processor for the IDM 700, the company's mainstay until 1988.

Coordinated hardware design with system and application software development, CAD, and CAE, and consulted in production release, testing, and training of support personnel. Specified and participated in selection of the company's CAE workstation network system.

FOONLY COMPUTERS, INC., Mountain View, CA **1981-84**
Foonly designed, manufactured, marketed, and serviced DEC-10 and DEC-20 compatible mainframe computers.

Design Engineer

Developed what was possibly the first working 10 Mbps Ethernet controller on a DEC-compatible mainframe, predating the availability of LSI Ethernet support chips.

Debugged production mainframes. Wrote an interactive MACLISP program and hardware interface to allow remote gate-level fault diagnosis of Foonlys over the telephone network.

CYCLOTOMICS, INC. (now Kodak Berkeley Labs), Berkeley, CA **1978-80**
Cyclotomics/Kodak Berkeley designs and develops sophisticated error-correcting codecs for fault-tolerant computer memories, secure tactical and strategic communication, industrial and consumer data storage (including the Compact Disc standard and digital video), and numerous other applications.

Member of Technical Staff

Designed error-correcting circuitry for computer memories.

Designed and MIL-qualified an airborne error-correcting codec.

Worked closely with Dr. Elwyn Berlekamp, Cyclotomics' founder, the world's foremost authority on algebraic coding and its efficient implementation in digital hardware.

GARY W. SCHWEDE, CONSULTANT, Lafayette and Palo Alto, CA **1978-88**
Technical consulting, engineering, and technical writing.

Consulting Engineer, Scientist, and Writer.

Some clients and projects: CompuSonics Corp., Britton Lee, National Computer Performance Corp., SmithKline Instruments (ultrasound medical imager), Avocet Mfg. (the Cyclometer, a lightweight bicycle speedometer/ odometer/ timer still widely used in world-class bicycle racing, Forrest Warthman and Associates (technical writing and engineering).

UNIVERSITY OF CALIFORNIA AT BERKELEY **1978**

Teaching Assistant

Designed and taught upper-division Electrical Engineering lab courses.

NASA/GSFC Solar Spectrometer Group, Sacramento Peak Observatory, Sunspot, NM **1976-77**

Digital Engineer

Designed and implemented digital real-time control systems for solar telescopes.

NEW MEXICO INSTITUTE of MINING and TECHNOLOGY, Socorro, NM **1971-76**

Research Engineer, Research Asst., Teaching Asst., Departments. of Physics and Computer Science.

Planned and taught computer hardware and programming courses.

Assisted in design and construction of a radiotelescope array for detecting dispersed electromagnetic pulses from extragalactic supernovae.

Built instrumented rockets and launched them in active thunderstorms.

EDUCATION

University of California at Berkeley. Graduate Division, Dept. of Electrical Engineering and Computer Sciences. Ph.D., Engineering Science, 1983. Major areas: computer architecture, signal processing, CAD/CAE. Minor in economics. Research interests: real-time signal processor architectures, constant-Q spectrum analysis not constrained by FFT techniques. Awarded California Fellowship in Microelectronics, 1983.

New Mexico Institute of Mining and Technology, Socorro, NM. Graduate Division, Depts. of Physics and Computer Science. Major Areas: Electronic circuit design, state machines and automata, fuzzy switching algebras, computer organization, real-time pattern recognition. M.S., Computer Science, 1977.

New Mexico Institute of Mining and Technology. B.S., Physics (honors), 1973.

Named to the Honors Group, 1969 Westinghouse Science Talent Search. Collected multiple awards at the 20th International Science and Engineering Fair, 1969. National Merit Scholar, 1969.

SELECTED PUBLICATIONS and TECHNICAL PAPERS

United States Patent No. 5,276,900.

"Object-Oriented Hardware for Application-Specific Computing"
Stream Computers, Inc. 491 Aldo Ave., Santa Clara, CA 95054, May, 1993

"Mechanisms of Unmusicality in Compact-Disk Players: Measurements, Observations, and Conjectures"
Preprint 3145, 91st AES Convention, New York, Oct. 1991.

"An Introduction to Stream Computer Architecture"
Preprint 3189, 91st AES Convention, New York, Oct. 1991.

"Algorithms and Architectures for Constant-Q Fourier Spectrum Analysis"
Ph.D. Dissertation, University of California, Berkeley, 1983.
Available in hard copy and microform from University Microfilms International, 300 N. Zeeb Rd., Ann Arbor, MI, USA.
(Constant-Q analysis is a forerunner of present-day wavelet techniques. Ten years later, the algorithms and computing structures described in my work are just now becoming widely known.

"An Algorithm and Architecture for Constant-Q Spectrum Analysis"
Proceedings of the 1983 IEEE International Conference on Acoustics, Speech, and Signal Processing, Boston, MA, April, 1983.

"Fuzzy Maps" (with Abraham Kandel)
IEEE Transactions on Systems, Man and Cybernetics, September, 1977.

"A Fuzzy Hierarchical Systems Model for Real-Time Visual Interpretation in Musical Experiences"
Library of Papers, 1977 International Computer Music Conference, Center for Music Experiment, U.C. San Diego, San Diego, CA, October, 1977.

"Application of Fuzzy Hierarchical Systems Concepts to the Real-Time Visual Representation of Musical Structures"
Master's thesis and CSR 141, Dept. of Computer Science, New Mexico Institute of Mining and Technology, August, 1976.

"n-Variable Fuzzy Maps with Application to Disjunctive Decomposition of Fuzzy Switching Functions"
Proceedings of the Sixth International Symposium on Multiple-Valued Logic, 1976.

"Measurements of Electric Fields in Thunderclouds" (with W.P. Winn and C.B. Moore) Journal of Geophysical Research, April 20, 1974.

"Drag and Stability of Conical Model Rockets"
Bulletin of the New Mexico Academy of Science, Fall 1969.

MEMBERSHIPS

IEEE (Computer Society; Signal Processing Society)
Sponsor, Ludwig von Mises Institute
Sponsor, Center for Defense Information
Planetary Society
British Association Young Scientists (honorary member, 1970)

INTERESTS AND AVOCATIONS

High-fidelity audio equipment design and music appreciation.
Backyard organic gardening.
Austrian economics and its political implications.
Practical and action pistol competition.
Certified pistol and personal protection instructor.

REFERENCES

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